Owner's Manual

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SIGNAL Overview

Thanks for purchasing SIGNAL, the world's most powerful Pulse Engine. Here you'll find documentation for everything you need to get started. SIGNAL has four menu pages that house the functions for creating pulses, editing effects, saving and accessing presets, and editing Macro controls. You'll find a detailed overview of each page below.

Pulse Engines Page

Effects Page

**Pulse Instruments Page**

Macro Edit Page

Pulse Engines

SIGNAL is made up of two Pulse Engines, allowing you to play two sound sources and up to four pulses at once! Each Pulse Engine has two rhythm generators, which are referred to as the Main and 2nd Rhythm. Additionally, each Pulse engine has a Volume and Pitch ADSR section. You can deactivate either Pulse Engine at any time by clicking on the power button beneath the VU Meter.

Pulse Types

There are four different ways to pulse: Wave, Step Sequencer, Arpeggiator, and Output's Looper. Each Pulse type has an adjustable pulse rate, which automatically locks to your host tempo. Each Pulse Type has its own set of available parameters to modulate, which are accessed in SIGNAL's 'Advanced' controls. You can turn off all pulses by clicking on the center SIGNAL button.

The Wave Pulse Type is a traditional LFO that modulates any of the following parameters: Volume, Pan, Filter Cutoff, Filter Resonance, Tube Drive, and Distortion. You have the ability to delay the onset of the pulse by up to 10 seconds by clicking on the lock icon and setting the fade in time. You also can choose between 30 preset waveforms by clicking on the adjacent 'Shape' button.
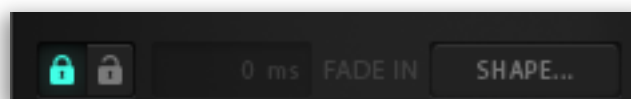
The Step Sequencer Pulse Type provides up to 32 steps of modulation for Volume, Pan, Filter Cutoff, Filter Resonance, Tube Drive, and Distortion. You can adjust the Pulse rate from 1 bar to 1/64 triplet in length. The Step Sequencer makes it easy to create pulses in odd time signatures by setting the number of steps to an uneven value and adjusting the pulse rate to taste. You can even shift the start of the pattern by clicking on the arrows located along the left and right perimeter of the Step Sequence box.

The Arp Pulse Type allows you to arpeggiate as many as 50 voices for up to 32 steps. Each Pulse Engine has its own arpeggiator, so you can independently arpeggiate two sounds with completely different settings at once. You can choose from 11 different arpeggiation patterns: Up, Down, Up-Down, Down-Up, Zig-Zag Up, Zig-Zag Down, Zig-Zag Up-Down, Zig-Zag Down-Up, As Played, Random, and as a Chord. By clicking on the cog icon in the bottom right, you have access to the settings for note duration, swing, number of round robins, and number of octaves reached by the arpeggio.
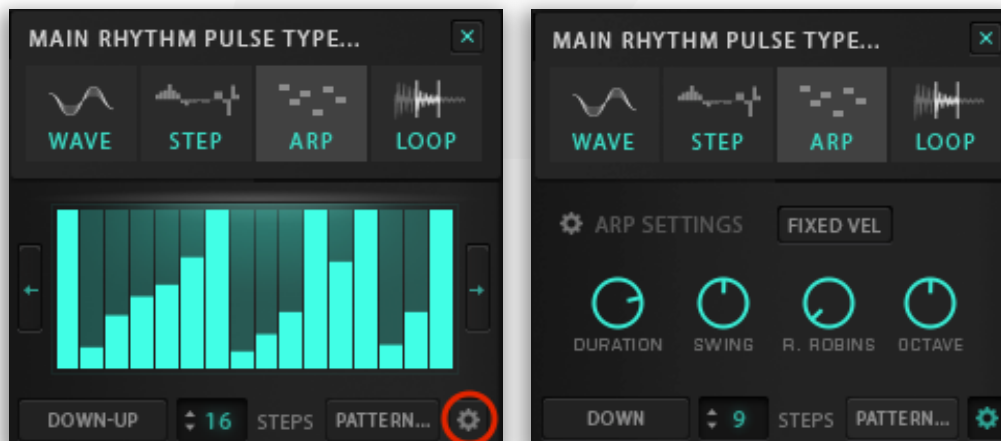
The Loop Pulse Type creates pulses by repeating individual notes as they are triggered. You can set the length of the Loop from one bar to 1/64 triplets at a given tempo. Drag the highlighted area in the loop window to adjust the selection of the sound that loops. You also have the ability to adjust the starting point of the loop playback with a horizontal slider beneath the Loop's waveform interface.

The Loop Pulse Type provides the ability to **stack** the same looped notes multiple times using a sustain pedal. With the 'Stack' button engaged and the sustain pedal held down, you can retrigger the same note to play back as a loop multiple times with a contrasting rhythm. For example, trigger C3 with the sustain pedal engaged, then retrigger C3 as part of a chord with a syncopated rhythm.

Beneath the loop waveform window is the sample start slider. Move this slider to trigger the loop at a different starting point than the original transient.
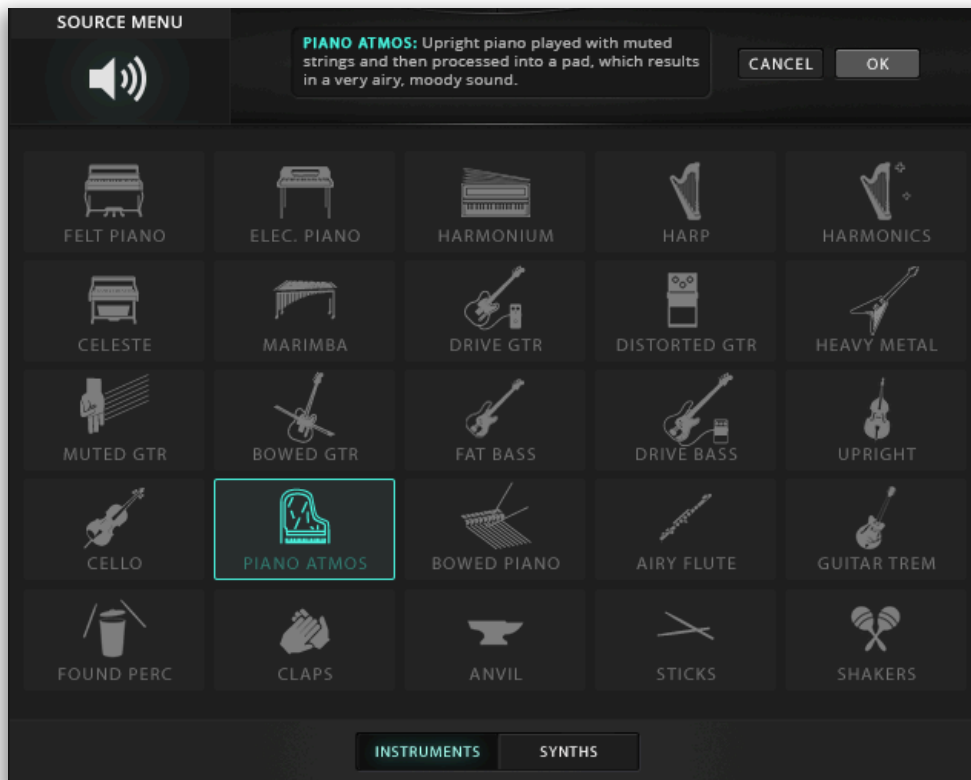
Sound Source Menu

SIGNAL has 50 sound sources: 25 derived from electronic sources (Analog and Digital) and 25 from acoustic instruments.
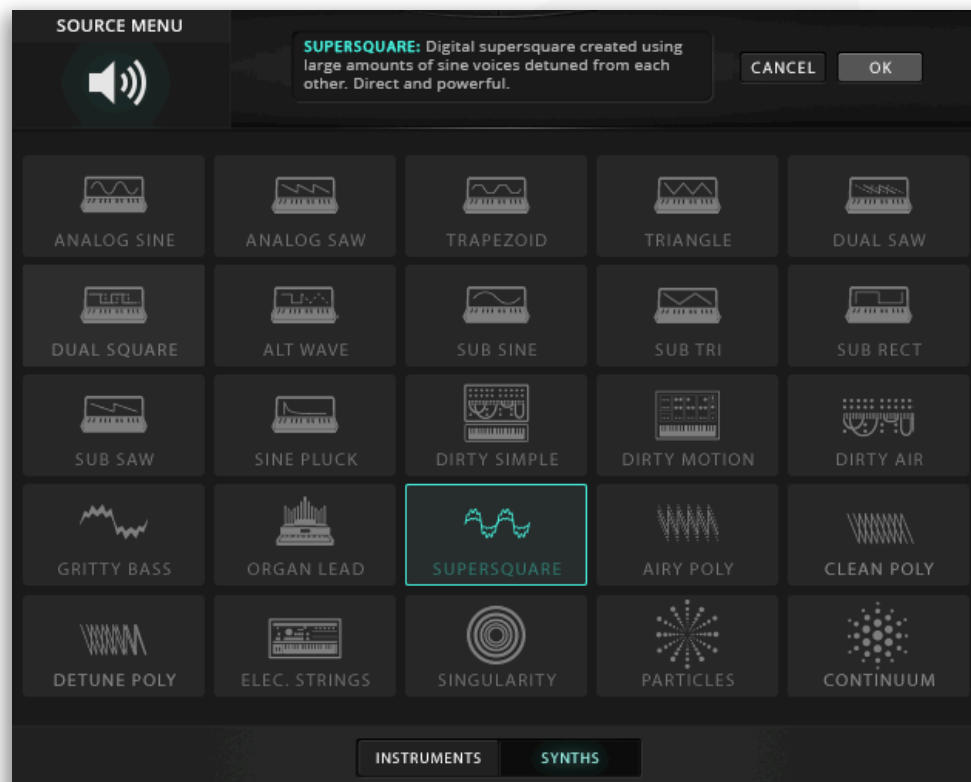
Each Pulse Engine has its own sound source and can be selected by clicking on the instrument icon beneath the VU meter in the channel strip section.

Instrument Sources

Synth Sources

Pulse Engines Advanced Page

The Pulse Engines Advanced Page is where you can activate and mix parameters such as Rhythm Send amounts, Pitch and Volume Envelopes, and fine adjustment settings for filters, tube, and overdrive when the Wave and Step Sequence Pulse Types are selected.

Rhythm Sends

You can modulate 6 different parameters at once using the Wave or Step Sequence Pulse Types. The amount of modulation is controlled by Rhythm Sends. Rhythm Sends appear in the Advanced Page as square blocks that become illuminated as the user increases the modulation amount.

Using the Wave and Step Sequence Pulse Types, you can modulate the volume, pan, filter cutoff, filter resonance, tube drive amount, and distortion amount of the sound source assigned to a Pulse Engine.

Filter Section
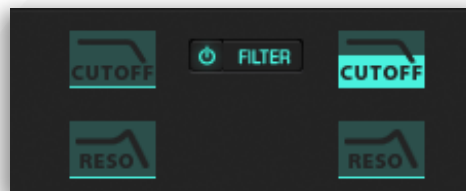
SIGNAL gives you the option to choose between 6 distinctively different filter types: band pass, notch, and two distinctively different high and lowpass filters. Click on the 'FILTER' button to access the filter's settings including envelope amount, attack, decay, sustain, release, cutoff, and resonance.
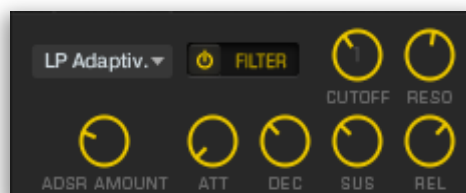
Envelope Section

There are two different envelope generators per Pulse Engine. One envelope is tied to the Engine's volume, the other affects the pitch.

Volume Envelope

Attack: time (in ms) it takes a sound to reach full volume.
Decay: time (in ms) it takes for sound to reach sustain level.
Sustain: volume at which the sound will remain until the trigger is released.
Release: time (in ms) it takes for the volume to decay to silence.

Pitch Envelope

Pitch Slider: semitones up or down in which the pitch glides.
Attack: time (in ms) it takes for pitch to reach set value.
Decay: time (in ms) it takes for pitch to reach sustain level.
Sustain: pitch at which the sound will remain until the trigger is released.
Release: time (in ms) it takes for the pitch to decay to root note.

Effects Page

SIGNAL provides a suite of effects tailored for the individual Pulse Engines and globally across both Engines that can be used simultaneously. All effects in SIGNAL are insert effects, but many have mix wet/dry control for parallel processing.

Global Effects

EQ: 3 frequency bands with adjustable bandwidth and gain cut/boost controls.

Compressor: threshold, ratio, attack, release, and gain control.

Phaser: depth, speed, feedback, and wet/dry mix control.

Chorus: depth, speed, phase, and wet/dry mix control.

Limiter: input gain, release time control.

Filter: high and lowpass filters with frequency cutoff and resonance control.

Delay 1: tempo-synced delay time, feedback, L-R pan amount, we/dry mix control.

Delay 2: tempo-synced delay time, feedback, L-R pan amount, we/dry mix control.

Convolution Reverb: select from up to 18 different impulse responses recorded exclusively for SIGNAL for an incredibly realistic sounding reverb. Users can control the pre delay time, early reflection size, late reflection size, cutoff frequencies of high and lowpass filters, and the overall wet/dry mix.

Pulse Engine Effects

Effects are enabled for each Pulse Engine by clicking on the corresponding 'power button' beneath each effect. Clicking the indigo colored power button on the left will activate the insert effect on Pulse A, clicking the yellow power button will activate the insert effect on Pulse B.

EQ: 3 frequency bands with frequency and cut/boost controls.
Compressor: threshold, ratio, attack, release, and gain control.
Lofi: a bit crusher effect with controls for sample rate and bit depth.
Tape Saturation: magnetic tape emulation with amount and output level controls
Drive: overdrive effect with gain, bass, mid, and treble controls.
Stereo Spread: a panning effect that will widen the stereo image.
Delay 1: tempo synced delay time, feedback, and wet/dry mix controls.
Delay 2: tempo synced delay time, feedback, and wet/dry mix controls.
Reverb: separate from SIGNAL's convolution reverb engine, this reverb effect models a room with pre delay time, size, and wet/dry mix controls.
Flutter: an effect modeling slight pitch modulation of a tape machine with pitch modulation amount and frequency controls.

Pulse Instruments Page

The Pulse Instruments page is where you can browse for sounds and select from 500 factory tailored Pulse Instruments, Expansion Pack add-ons, or user presets. We use a tagging system to help pair similar sounding Pulse Instruments with common attributes.

The Tag Grid

Click on a tag, and all presets that are saved with the tag's attribute will appear in the Pulse Instruments list. SIGNAL uses an 'and' attribute tagging scheme. So if you click on both the 'Pluck' and 'Arpeggiated' tags, you will only be able to choose from Pulse Instruments that are both arpeggiated *and* plucks.

When you save a custom preset, you can name and assign tags openly (the 'User' tag will be selected by default). Click on the 'Clear' button to clear the list of selected tags.

Saving A Preset
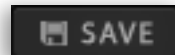
When you dial in a new sound that you'd like to save as a preset to recall later on, all you need to do is click on the 'Save' button at the top of SIGNAL's instrument window (just left of the 'Copy' button). You will then be prompted to enter a new name and add applicable tags to classify the preset. As noted earlier, the 'User' tag will populate by default.

We encourage you to make use of the 'Best Of' tag. If you wish to organize your favorite presets (factory or user), save them with the 'Best Of' tag.

Pulse Instruments Page Cont'd

Running a Scan for Presets

Whenever you install a new Expansion Pack for SIGNAL, it's necessary to run a scan for new presets. The Scan button is located in the lower right corner of the Pulse Instruments list. Locate and click the 'SCAN' button, then double click the "--- SCAN ---.nka" at the top of the Pulse Instruments list. SIGNAL will then check the Signal > Data > Signal Presets folder for recently installed Expansions. When the scan is finished, you will find the new Expansions in the Pulse Instruments list.
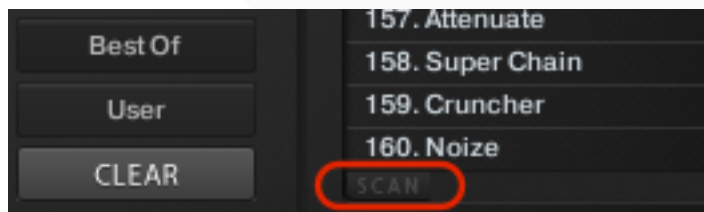

Advanced Sound Design

The Copy Menu

When designing your own sounds in SIGNAL, you might want to double one Pulse Engine and continue to make adjustments on the second layer. SIGNAL allows the user to copy the Layer FX settings, sound source / channel strip settings, the Pulse Engine (main rhythm, 2nd rhythm, rhythm send settings), or the entire layer as a whole.

To access the Copy menu, simply click on the Copy button (1) on the top panel next to the 'Save' button. Then click on the desired elements to copy over to the target layer (2). Finally, click the center 'copy' button (3) to finalize the process.

The Copy Menu
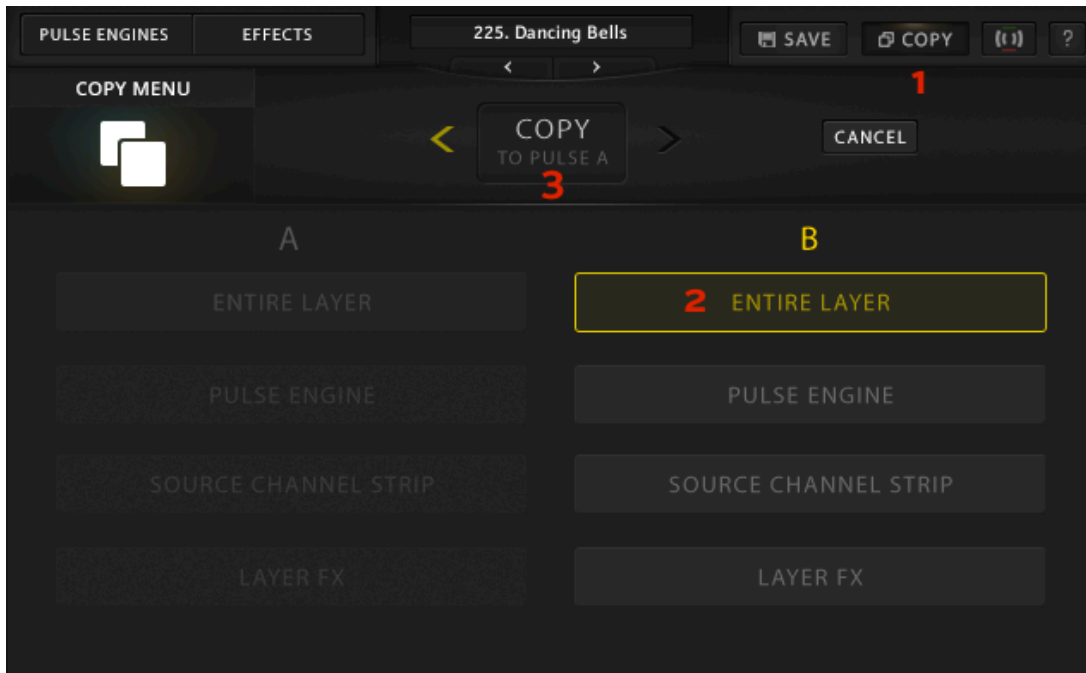
Creating Custom Macros

Users can control multiple parameters with a single control using SIGNAL's Macros. Everything you need to edit Macros are found on the Macro Edit Page. Each Pulse Instrument has the ability to map up to six parameters mapped to each of the four Macros. You can bypass, cancel, or edit the modulation range of each of these parameters on the Macro Page.
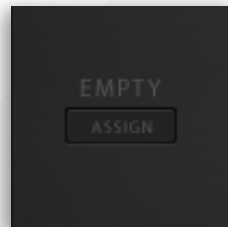
Creating Custom Macros

1. Navigate to the Macro Edit Page by clicking the icon in the top right corner of SIGNAL.

2. Select which of the four Macros to add effects.

3. Click 'Assign' on an empty slot to enter **Macro Assign Mode**. Then navigate to the Pulse Engines or Effects page and simply click on the SIGNAL parameter that you wish to assign to the selected Macro.

4. Adjust the modulation range of the macro assigned parameter to taste by moving the green indicator to the right for modulation amount in the positive direction, and left for modulation amount in the negative direction.

The red mark indicates the given parameter's value when the corresponding Macro slider is set to its lowest point. The green mark indicates the parameter's value when the Macro's slider is pushed to full scale.
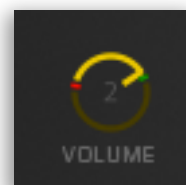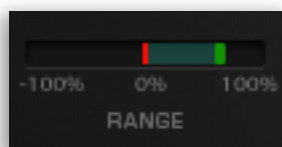
In Macro Assign Mode, you can simply hover over a SIGNAL parameter and click to assign it to a corresponding Macro control. Assignable parameters will display a square 'Assign' image when you hover across them. You can override previously saved Macro assignments by clicking the 'Override' image that appears as you hover across.

Some parameters are not assignable to Macros, these parameters will *not* show the 'Assign' image when hovered across.

Pulse Engine Settings

Users can adjust the keyrange, number of voices, and MIDI controller velocity sensitivity in the Pulse Engines settings page. To access these settings, click on the gear icon in the top right corner of the Pulse Engine.
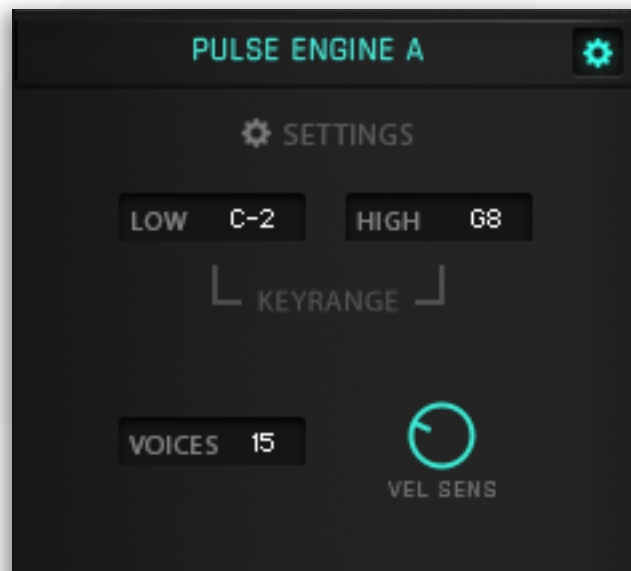
CPU/RAM Optimization

We recommend using SIGNAL with Kontakt 64 bit. If you're using SIGNAL inside of a DAW, it's recommended that you use a 64 bit DAW.

We also recommend using at least 512 samples of audio buffer with SIGNAL. You can adjust the audio buffer size in the Kontakt's Options, in the audio preferences of most all DAWs.

Thank you for using SIGNAL! If you have any other questions, please visit our website and check out our Knowledge Base for news, FAQs, and troubleshooting tips: outputsounds.com/support